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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/569,171	02/22/2006	Stephan jo Cecile Henri Theeuwen	NI 031066	7877

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EXAMINER	
HO, ANTHONY	

ART UNIT	PAPER NUMBER
2815	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/569,171	THEEUWEN ET AL.	
	Examiner	Art Unit	
	Anthony Ho	2815	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *01 June 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-11* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-11* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

This is in response to amendment to application no. 10/569,171 filed on June 1, 2007.

Claims 1-11 are presented for examination.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-3 and 10-11 are rejected under 35 U.S.C. 102(b) as being anticipated by Van Den Heuvel (US PUB 2002/0102800).

Van Den Heuvel discloses an electronic device and method of manufacturing the same, comprising a LDMOS type transistor provided at a surface of a semiconductor substrate made of silicon, the transistor having a source and a drain that are mutually connected through a channel, which transistor is further provided with a gate electrode and a shield formed as a metal silicide present between the gate and the drain, which drain is provided with a drain extension extending in the substrate towards the channel, the drain having a contact, drain contact and gate being mutually separated through an extension area, wherein the shield has a two-stepped structure in the extension area, and a L-shaped spacer is present between the gate-electrode and shield (Figure 1; Figure 9; page 2 – page 3).

Claims 1, 3-4, 6-7, and 10-11 are rejected under 35 U.S.C. 102(b) as being anticipated by Baliga (US Patent 6,545,316).

Baliga discloses an electronic device and method of manufacturing the same, comprising a LDMOS type transistor provided at a surface of a semiconductor substrate made of silicon, the transistor having a source and a drain that are mutually connected through a channel, which transistor is further provided with a gate electrode and a shield formed as a metal silicide present between the gate and the drain, which drain is provided with a drain extension extending in the substrate towards the channel, wherein the drain extension is provided with a first and a second region, the first region having interfaces with the channel and the second region, the second region having an interface with a contact area within the drain, which first region has a higher dopant concentration than the second region, the ratio of the dopant concentrations in the first and second region is in the range of 1.2 to 2.5, the first region and interface between first and second region is substantially present within a shield area defined by a perpendicular projection of the shield on the substrate, the drain having a contact, drain contact and gate being mutually separated through an extension area, wherein the shield has a two-stepped structure in the extension area (Figure 9; column 14 – column 15).

Claims 1 and 10-11 are rejected under 35 U.S.C. 102(b) as being anticipated by Applicant Admitted Prior Art (AAPA).

AAPA discloses an electronic device and method of manufacturing the same, comprising a LDMOS type transistor provided at a surface of a semiconductor substrate made of silicon, the transistor having a source and a drain that are mutually connected through a channel, which transistor is further provided with a gate electrode between the gate and the drain, which drain is provided with a drain extension extending in the substrate towards the channel, the drain having a contact, drain contact and gate being mutually separated through an extension area, wherein the shield has a two-stepped structure in the extension area (Figure 1; page 3 – page 4).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 5 and 8-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Baliga (US Patent 6,545,316) in view of Van Den Heuvel (US PUB 2002/0102800). Baliga discloses an electronic device comprising a transistor provided at a surface of a semiconductor substrate, the transistor having a source and a drain that are mutually connected through a channel, a source electrode, and a drain electrode, which transistor is further provided with a gate electrode for influencing an electron distribution in the channel and with a shield, the shield is electrically connected to the source through an electrical connection, the electrical connection comprises a capacitor,

present between the gate and the drain, which drain is provided with a drain extension extending in the substrate towards the channel, the drain having a contact, said drain contact and said gate being mutually separated through an extension area, which drain extension is provided with a first and a second region, the first region having interfaces with the channel and the second region, the second region having an interface with a contact region within the drain, wherein the first region has a higher dopant concentration than the second region, and the first region is substantially present within a shield area defined by a perpendicular projection of the shield on the substrate (Figure 9; column 14 – column 15).

Van Den Heuvel discloses the shield is separate from the source electrode (Figure 1). The advantage is to obtain a device capable of operating at high voltages and high frequencies with a simple and inexpensive method (paragraph 0004).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the electronic device as taught by Baliga with the shield is separate from the source electrode as taught by Van Den Heuvel in order to obtain a device capable of operating at high voltages and high frequencies with a simple and inexpensive method.

Response to Arguments

Applicant's arguments filed June 1, 2007 have been fully considered but they are not persuasive.

The amendments do not overcome the previous rejections applied since the "stepped" shield structure of Van Den Heuvel, Baliga, and AAPA can also be interpreted as a "two-step" shield structure. For example, in Figure 9 of Van Den Heuvel, there is at least two-step structure underneath the shield layer 27 and when the shield layer is formed over this structure, the shield layer becomes a two-step structure. Each incline represents a step. Furthermore, the shield layer has many steps microscopically and the claimed invention does not specify how big the steps are. Therefore, the claimed invention is not patentably distinct from the prior arts of record.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anthony Ho whose telephone number is 571-270-1432. The examiner can normally be reached on M-Th: 8:30AM-7:00PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kenneth Parker can be reached on 571-272-2298. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

AH
June 6, 2007

JEROME JACKSON
PRIMARY EXAMINER